



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/749,345	12/27/2000	Masato Shimakawa	450100-02918	5389

20999 7590 09/28/2007
FROMMER LAWRENCE & HAUG
745 FIFTH AVENUE- 10TH FL.
NEW YORK, NY 10151

EXAMINER

WOZNIAK, JAMES S

ART UNIT	PAPER NUMBER
----------	--------------

2626

MAIL DATE	DELIVERY MODE
-----------	---------------

09/28/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/749,345	Applicant(s) SHIMAKAWA ET AL.	
	Examiner James S. Wozniak	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In response to the office action from 4/19/2007, the applicant has submitted an amendment, filed 7/18/2007, amending independent claims 1 and 10-11, while arguing to traverse the art rejection based on the limitation regarding selection of a text-to-speech synthesis dictionary based on behavioral and emotional state factors (*Amendment, Page 11*). Applicant's arguments have been fully considered, however the previous rejection is maintained due to the reasons listed below in the response to arguments.

2. In response to the amendment of claim 10 and the associated arguments (*Amendment, Page 9*), the examiner has withdrawn the previous 35 U.S.C. 101 rejections directed towards claims 10 and 13.

Response to Arguments

3. Applicant's arguments have been fully considered but they are not persuasive for the following reasons:

With respect to independent **claims 1 and 10-11**, the applicant argues that the prior art of record fails to teach selection of a text-to-speech synthesis dictionary based on a plurality of pre-programmed personality information comprising behavioral and emotional state factors

(*Amendment, Page 11*). The examiner notes that such a statement may be correct, especially since Edatsune et al (*U.S. Patent: 5,802,488*) select a text-to-speech vocabulary based on a plurality of factors including age and recognition number and Surace et al (*U.S. Patent: 6,144,938*) disclose that a plurality of personality factors used in speech synthesis include user and time based factors (Col. 14, Lines 13-45; Col. 15, Lines 3-49; Col. 16, Line 54- Col. 17, Line 6), not emotional and behavioral state factors that are monitored in behavior-state and emotion-state changing means as is recited in the presently claimed invention.

The amended claims, however, do not overcome the previous grounds of rejection because “claim scope is not limited by claim language that suggests or makes optional but does not require steps to be performed, or by claim language that does not limit a claim to a particular structure” (*see MPEP 2111.04*). In the present case, the limitation “wherein the plurality of factors...comprise behavioral and emotional state factors” is not required in the claim because the structure/step in which such information would be utilized (*i.e., the pre-programmed personality information is referenced*) makes said factors optional (“*wherein a voice of said speech synthesizing apparatus is a function of said speech synthesizing information and said pre-programmed personality information*”). Accordingly, the additional claim amendments will not be given patentable weight and the previous grounds of rejection are maintained. In order to overcome the prior art of record, the examiner recommends amending the synthesizing means/steps to –synthesizing means for synthesizing a speech signal corresponding to the text according to said pre-programmed personality information and speech synthesizing information included....-. Such an amendment would then make required the pre-programmed personality information, the plurality of factors comprising behavioral and emotional state factors and the

plurality of substitute dictionaries as set forth in the independent claims, thus overcoming the prior art of record.

With respect to **Claim 11**, the applicant argues that the amended claims overcome the 35 U.S.C. 101 rejections stated in the Office Action (*Amendment, Page 10*). In response, the examiner notes that although the claims have been amended to include a computer-readable medium, the body of the claims is still described in terms of the program rather than a method performed by a computer when the program is executed (*i.e., "the program comprising" rather than -the program, which when executed by a computer performs a method comprising--*). As such, claims 11 and 14 are still directed to non-statutory subject matter.

The rejection of the dependent claims is traversed for reasons similar to claims 1 and 10-11 (*Amendment, Page 11*). In regards to such arguments, see the above response directed towards claims 1 and 10-11.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: -- Speech Synthesizing Apparatus, Speech Synthesizing Method, and Recording Medium Using a Plurality of Substitute Dictionaries Corresponding to Pre-Programmed Personality Information--.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. **Claims 11 and 14** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 11 is drawn to a “program” *per se* as recited in the preamble (*Line 3- “the program comprising”*) and as such is non-statutory subject matter because the body of the claim is described in terms of the program structure rather than the method performed when the program is executed by a computer. See MPEP § 2106.IV.B.1.a. Data structures not claimed as embodied in computer readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention, which permit the data structure's functionality to be realized. In contrast, a claimed computer readable medium encoded with a program data structure defines structural and functional interrelationships between the data structure and the *computer software and hardware components* which permit the data structure's functionality to be realized, and is thus statutory. Similarly, computer programs claimed as computer listings *per se*, i.e., the descriptions or expressions of the programs are not physical “things.” They are neither computer components nor statutory processes, as they are not “acts” being performed. Such claimed computer

Art Unit: 2626

programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized.

Dependent **claim 14** fails to overcome the 35 U.S.C. 101 rejection as applied to Claim 11, and thus, are also directed to non-statutory subject matter.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 1, 3-7, and 9-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al (U.S. Patent: 6,175,772) in view of Edatsune (U.S. Patent: 5,802,488), and further in view of Surace et al (U.S. Patent: 6,144,938).

With respect to **Claims 1 and 10**, Kamiya discloses:

Behavior-state changing means, responsive to a behavior event, for changing a behavior state according to a behavior model (*behavior decision means*, Col. 4, Lines 39-46; Col. 9, Line 26- Col. 10, Line 61);

Emotion-state changing means for changing an emotion state according to an emotion model (*emotion generation*, Col. 7, Line 33- Col. 8, Line 58);

Selecting means for selecting control information according to the behavior state and/or the emotion state (*robot behavior decision means utilizing current emotion/behavior, Col. 9, Line 26- Col. 10, Line 61*); and

Synthesizing a voice signal based on an output from a behavior decision means (*Col. 10, Lines 25-43*).

Although Kamiya does teach a means for speech synthesis, Kamiya does not specifically disclose that synthesized speech is derived from substitutable generated text, wherein the text may be substituted with a plurality of words from substitute dictionaries in accordance with personality information and a plurality of determining factors. Edatsune, however, recites:

Text generating means for generating text in response to a behavior event (*content data generation in response to a user speech input, Col. 11, Lines 47-59; Fig. 2B, Element 4*);

Substituting means, having a number of word substitute dictionaries, for substituting a word or words included in the text with a word or words from the number of word substitute dictionaries in accordance with pre-programmed personality information (*content vocabulary for particular levels used to substitute responses over time to provide personality with respect to an interactive item's maturity, Col. 11, Line 7- Col. 12, Line 56, Fig. 2B*);

Wherein the pre-programmed personality information includes a plurality of factors that determine which of a plurality of substitute dictionaries is used by the substituting means (*selecting a content level vocabulary based on various times and a recognition number, Col. 11, Lines 8-32*); and

Wherein the voice produced by the speech synthesizing apparatus is a function of the speech synthesizing information and pre-programmed personality information (*speech synthesis data*, Col. 10, Lines 44-67; and *maturity-related personality data*, Col. 12, Lines 13-56).

Kamiya and Edatsune are analogous art because they are from a similar field of endeavor in user-interactive objects utilizing speech synthesis. Thus, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the teachings of Kamiya with the speech synthesis means utilizing maturity personality data as taught by Edatsune in order to enable an interactive item to appear more life-like (*Edatsune*, Col. 12, Lines 49-56).

Although Edatsune discloses a means for selecting a content vocabulary (*dictionary*) for a one of a plurality of age-based personalities based on a plurality of elapsed times (factors), the dictionary selection in Edatsune is based only upon a single type of factor (only age personality), and not a combination of factors, as is required by the presently claimed invention. Surace, however, recites selecting a particular synthesis dictionary (*prompt suite*) based on an additional user-based personality factor (Col. 14, Lines 13-45; Col. 15, Lines 3-49; Col. 16, Line 54-Col. 17, Line 6). Surace further mentions the combination of user and time based information in selecting a particular synthesized prompt (Col. 15, Lines 3-22).

Kamiya, Edatsune, and Surace are analogous art because they are from a similar field of endeavor in user-interactive systems utilizing speech synthesis. Thus, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the teachings of Kamiya in view of Edatsune with the user-based personality factor taught by Surace in order to provide an interactive personality that is best suited to a particular user's needs (Col. 16, Lines 40-53).

With respect to **Claim 3**, Kamiya further recites:

The selecting means selects the control information also according to the result of detection achieved by a detecting means for detecting an external condition (*voice and tactile command inputs, Col. 5, Line 5- Col. 6-, Line 12; Col. 9, Line 26- Col. 10, Line 61*).

With respect to **Claim 4**, Kamiya further recites:

Wherein the selecting means selects the control information also according to the individual information held by the holding means (*learning user preferences and habits, Col. 6, Lines 13-40*).

With respect to **Claim 5**, Edatsune additionally discloses:

Wherein the selecting means selects the control information also according to the elapsed time counted by the counting means (*clock for determining an elapsed time, Col. 10, Line 44- Col. 11, Line 32; Fig. 3A, Element 3*).

With respect to **Claim 6**, Kamiya further recites:

The selecting means selects the control information also according to the accumulated number of times the behavior state changing means changes behavior or the emotion state changing means changes emotion (*accumulating a behavior change response in a neural network to determine future behavior, Col. 6, Lines 14-40; Col. 9, Lines 26-44*).

With respect to **Claim 7**, Edatsune additionally discloses:

The personality information is included in the control information selected by the selecting means (*maturity/age related information used to control a response to a user, Col. 12, Lines 13-56*).

With respect to **Claim 9**, Kamiya further shows:

The speech synthesizing apparatus is a robot (Fig. 1).

Claim 11 contains subject matter similar to Claims 1 and 10, and thus, is rejected for the same reasons. Also, Kamiya recites a robot object that produces synthesized speech in response to external stimuli (*Col. 2, Lines 12-35; Col. 4, Lines 39-46*) that would require an inherent computer memory medium, similar to that utilized to store emotion models (*Col. 7, Lines 33-46*), to store the steps necessary to accomplish speech synthesis.

With respect to **Claims 12-14**, Edatsune teaches personality information indicative of an interactive object's age (*Col. 12, Lines 13-56*).

9. **Claims 2 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya et al (*U.S. Patent: 6,175,772*) in view of Edatsune (*U.S. Patent: 5,802,488*), further in view of Surace et al (*U.S. Patent: 6,144,938*), and yet further in view of Holm et al (*U.S. Patent: 6,260,016*).

With respect to **Claim 2**, Kamiya in view of Edatsune, and further in view of Surace teaches the speech synthesis apparatus utilizing speech synthesis data and maturity/age related personality data, as applied to Claim 1. Kamiya in view of Edatsune, and further in view of Surace, does not specifically suggest that speech synthesis data includes parameters such as pitch or utterance speed, however Holm teaches the use of such parameters in speech synthesis (*pitch parameter, Col. 9, Lines 3-16; and speech rate, Col. 8, Line 49*).

Kamiya, Edatsune, Surace, and Holm are analogous art because they are from a similar field of endeavor in speech synthesis systems. Thus, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the teachings of Kamiya in view of

Edatsune, and further in view of Surace with the speech synthesis parameters taught by Holm in order to ensure a natural prosody for synthesized speech (Holm, Col. 1, Lines 5-9).

With respect to **Claim 8**, Holm further teaches converting the style of a text input according to a prosody (*Col. 3, Lines 29-60*).

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached at (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak
8/23/2007



PATRICK N. EDOUARD
SUPERVISORY PATENT EXAMINER